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United States Institute for Textile Research, Inc.

Vol. II April, 1932 No. 4

C O N T E N T S

The Luncheon-Reception to President Garvan

Textile Foundation Research Awards

Abstracts

Bibliography

Book Review

Secretary's Temporary Office
65 Franklin St., Boston, Mass.

T. R. I. BULLETIN

An Official Publication of
United States Institute for Textile Research, Inc.

Vol. II April, 1932. No. 4

THE LUNCHEON-RECEPTION TO PRESIDENT GARVAN

Has Developed Into Important Symposium On Textile Research Should Inspire Large Attendance

To ensure the success of the luncheon-reception to President Garvan to be held Wednesday, May 4, at the Hotel Biltmore, New York City, the committee on arrangements merely needs as generous cooperation of members of U. S. Institute as has already been given by the presidents of national textile associations and leading research authorities who have welcomed this opportunity to honor our President, and to emphasize the importance to the industry of scientific research. Originally planned merely as an opportunity for the President and members to become acquainted it has grown into what promises to be the most important and interesting symposium on textile research that has ever been held in this country.

The reception by the President to members and invited guests from 12 noon to 12:30 P. M., and the President's address following the luncheon will be the outstanding features of the program. Luncheon will be served at 12:30 P. M., and, as previously announced, Vice-President H. V. R. Scheel will act as toastmaster for the speaking program that follows, while the President will be introduced by Dr. E. H. Killheffer.

The President will be welcomed to his new duties for the industry by the following presidents of national textile associations, and by letter by several who find it impossible to be present: Franklin W. Hobbs, National Association of Wool Manufacturers; George A. Sloan, Cotton-Textile Institute; Irving Southworth, National Association of Cotton Manufacturers; P. J. Wood, American Association of Textile Chemists and Colorists; Walter S. Brewster, Association of Cotton Textile Merchants of New York.

The principal speakers, other than President Garvan, will be the following: Franklin W. Hobbs, chairman, The Textile Foundation; Dr. Karl T. Compton, president, Mass. Institute of Technology; Dr. Charles H. Herty, ex-president, American Chemical Society; Director Maurice Holland of Division of Engineering and Industrial Research, National Research Council; W. D. Appel, Chief, Textile Section, Bureau of Standards, who will speak on Electrophoresis and pH. It is hoped that one or two other completed researches may be presented, also report of progress on U. S. Institute's annual "Textile and Allied Research: A Review of Progress."

Orders for tickets or reservations must be received by the Secretary not later than May 2nd. Members have the privilege of inviting guests and it is hoped that they will avail themselves of it.

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TEXTILE FOUNDATION RESEARCH AWARDS

Twenty Subjects Assigned--Largely Fundamental And On U. S. Institute List

The awards of textile research fellowships and scholarships just made public by The Textile Foundation mark the inauguration in this country of a well-rounded program of scientific textile studies. It is made possible by the income of a fund of $1,300,000 administered by the directors of The Foundation, part of which had previously been awarded for a series of economic studies on the distribution problems of the cotton, wool and silk industries. The only previous Foundation awards were made last year to U. S. Institute for a survey of textile research in this country, and to the American Association of Textile Chemists and Colorists for researches on dye fastness and on the iso-electric points of wool and silk.

Some idea of the scope and difficulty of the task faced by directors of The Foundation in making awards may be gained from the fact that official announcements of the opportunity to apply for the fellowships and scholarships were sent to some 250 qualified schools, colleges and universities, and that more than 700 applications were received, distributed among 39 states. Eight awards were made to senior fellows, eight to junior fellows and four as scholarships. Senior fellowships require a doctorate degree or equivalent training; for these the normal stipends are as follows: unmarried, first appointment, $2,000, re-appointment, $2,200; married, first appointment, $2,400; re-appointment, $2700. Junior fellowships require a bachelor's degree, or equivalent training, the normal stipends being, unmarried, $1,000; married, $1,200. Scholarships are for college seniors in good standing and carry a normal stipend of $750.

Aided by Prior Work of U. S. Institute

In the selection of subjects for research work the directors of The Foundation had the benefit of the list of researches in the "Survey of Textile Research in the United States," compiled by U. S. Institute last year, and also the advice of leading research and educational authorities. They also gave consideration to subjects that were the uncompleted studies of applicants to whom awards were made, and, in making the awards, endeavored to give each fellow work for which he was best fitted and to assign the supervision of the work to recognized authorities on the subject. To secure the latter they have not hesitated to go abroad, and two of the researches will be conducted in England. Practically all of the subjects assigned are of fundamental character and are among those that had been selected previously by the research committee of U. S. Institute for assignment to cooperating laboratories; in fact, considerable progress has already been made in some of the studies and early results may be anticipated. A few of those who have been granted fellowships will start work immediately, but the majority will not commence assigned studies until the opening of the new scholastic year next Fall.

List of Awards and Subjects

The following list of awards of senior and junior fellowships and scholarships is arranged in each instance by subject, name of fellow or senior, address, name of director of the research, and place where research is to be conducted:

Senior Fellowships: X-Ray Analysis of Fibre.- Wayne A. Sisson, University of Illinois; Dr. George L. Clark, University of Illinois, Urbana, Ill.

Orientation of the Constituents of the Benzene Ring.- John S. Reese IV, Wilmington, Del.; Dr. Arthur Lapworth, professor of chemistry, Manchester (Eng.) University.

Micro-Analysis of Fibres.- G. Gordon Osborne, Mass. Institute of Technology; Prof. E. R. Schwarz, Mass. Institute of Technology, Cambridge, Mass.

Protective Effects in Textile Deterioration and Dye Fastness.- Donovan J. Salley, Princeton University; Dr. H. S. Taylor, Princeton University.

Spectrophotometric Analysis of Dyed Materials.- Orrin W. Pineo, Mass. Institute of Technology; Dr. A. C. Hardy, Mass. Institute of Technology.

Application of Polarized Light to Textile Research.- Donald R. Morey, Cornell University; Dr. Ernest Merritt, Cornell University.

Absorption and Adsorption of Solutions by Textile Materials.- John B. Calkin, Mass.Institute of Technology; Dr. Wilder D. Bancroft, Cornell University.

Elastic and Plastic Properties of Textiles.- Raymond L. Steinberger, Harvard University; Dr. P. W. Bridgman, Harvard University.

Influences of Protein Constituents on Wool Fibres.- Wilbur O. Teeters, University of Illinois; Dr. R. L. Shriner, University of Illinois, Urbana, Ill.

The Mildewing of Textiles.- Bernard S. Gould, Mass.Institute of Technology; Dr. F. F. Blackman, reader of botany, St. John's College, Cambridge, Eng.

The Effect of Bacteria and Vegetable Oils on Silk.- Alfred H. Rogers, Lehigh University; Dr. H. M. Ullman, Lehigh University, Bethlehem, Pa.

Microbiology of Textile Fibres.- Bryce Prindle, Mass.Institute of Technology; Dr. S. C. Prescott, Mass. Institute of Technology.

The Disposal and Recovery of Textile Wastes.- Maxwelton S. Campbell, University of North Carolina; Dr. Thorndike Saville, University of North Carolina, Chapel Hill, N. C.

The Chemistry of Dyes.- Herbert E. Ritchey, Virginia Military Institute; Dr. Roger Adams, University of Illinois, Urbana,Ill.

Strength and Wearing Properties of Textile Fabrics.- Lawrence B. Haley, Alabama Polytechnic Institute; Prof. H. G. Gordon, Alabama Polytechnic Institute, Auburn, Ala.

Critical Study of Manufacturing Processes.- Roland L. Lee, Jr., Clemson Agricultural College; Prof. H. J. Ball, Lowell (Mass.) Textile Institute.

Scholarships

It was originally planned to award eight scholarships, but lack of applicants whose apparent qualifications justified that number of awards restricted the number to four. Subjects have not been definitely assigned but the following have been suggested: Chemical Research Bearing on Textile Fibres: Chemistry of Rayon and Silk; Chemical and Biological Studies on Wool; Fastness of Dyestuffs.

The scholarship awards are as follows:

John C. Broadmeadow, New Bedford Textile School; Thomas Nelson, Dean, Textile School, North Carolina State College, Raleigh, N. C.

Alva D. Zellner, Georgia School of Technology; Dr. H. S. Busby, A. French Textile School, Atlanta, Ga.

Fred L. Greenwood, Dickinson College; Dr. M. W. Eddy and Dr. E. A. Vuilleumier, Dickinson College, Carlisle, Pa.

Albert G. Fisher, Clemson Agricultural College; Prof. H.H. Willis and Prof. H. L. Hunter, Clemson College, S. C.

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CLASSIFIED INDEX
of
Abstracts and Bibliography
(Arranged Alphabetically by Major Subject)

	Page
Fibres (Synthetic and Natural) and Fibre Analysis	
Bast Fibres: Fibrillar Structure	15
Branding Fluid: Is the Perfect, a Possibility?	11
B-Cellulose, Tunicin, Cotton Cellulose: The Minimum Equivalent of	19
Cellulose: Hygroscopic Moisture of. II.	10
Cellulose Acetate: Saponification and Solubility	9
Cellulose Acetate Rayon: Preparation from Non-Lignified Cellulose	15
Cellulose Derivatives: X-Ray Examination of. XI. Additive Compounds of Cellulose with Hydrazine, Ethylenediamine and Tetramethylene Diamine.	9
Cellulose Fatty Acid Esters: The Acid Value of, and a Rapid Method for the Analysis of Certain Cellulose Acetates.	13
Cellulose Nitroacetate Rayon: Preparation and Properties.	15
Cotton Cellulose Fibre: Microscopy of the.	14
Esterification of Cellulose: Behavior of Zinc Chloride in the	10
Fibre Alteration: Catalytic	7
Fibre Properties and Micelle Orientation	19
Fibres: The Identification of	12
Formyl Cellulose	18
Highly Polymerized Compounds. LIV. Constitution of Compounds of High Molecular Weight, Especially of Cellulose	19
Hydrolysis of Tussah Silk Fibroin: The Products of	7
Ramie Redivivus	17
Sheep Branding Fluids: A Test of	12
Silk: The Effect of pH on the Photochemical Decomposition of	16
Silk: Photochemical Decomposition	14
Viscose Cellulose: The Influence of Quality of Water and Hydrochloric Acid on the Ash Content of	10
Wool: The Effect on, of Temperature and Hydrogen Ion Concentration of the Scouring Bath	15
Wool Production: The Influence of Nutrition upon Various Factors Related to	12
Wool Shrinkage Determination by Means of Small Samples	12
Yarns and Fabrics	
Rayon: Recent Trends in Running	18
Tire Cord. A Decade of Development	19
Traveler Weights and Yarn Tensions During Spinning	14
White Cotton Cloth: The Production of	17
Chemical and Other Processing (Not Otherwise Classified)	
Alkaline Salt Solutions: Detergency of. I. Initial and Available Alkalinity	8
Bleaching, Dyeing and Finishing: Progress in	19
Cellulose: Decomposition of, by Microorganisms. II. The Chemistry of the Breakdown of Cellulose by the Aerobic Spore-forming Bacteria	19
Color of Azo Dyes: Effect of Lactonic Ring on the	6
Cotton-Rayon Mixtures: Careful Choice of Dyestuffs Essential for Faster	18
Dasheen Starch	16

Dry Cleaning and Textile Maintenance Problems, As Affecting Every Branch of the Textile and Garment Industry 18
Dyeing of Cellulose: The Mechanism of. I. The Dyeing of Cellulose with Basic Dyes (Preliminary Paper). Some Known Facts Which Are Consistent with the Electrical Adsorption Theory of Dyeing. 7
Faster Dyeings on Rayon and Cotton Mixed Goods: The Production of 16
Penetrants and Wetting Agents. I. 18
Pyronine Dyestuffs: Effect of Unsaturated Chromophores on. I. 6
Silicate of Soda: The Value of, as a Detergent. II. 7
Sodium Metasilicate: Detergent Value of 8
Sodium Silicate: Detergent Value of 9
Warp Mercerizing: Chemical Control for Uniform Results in 18
Wool Yarns: Fugitive Stains for 18

Research Methods and Apparatus
Cellulose: Measurement of the Viscosity of Solutions of, in Cuprammonium Hydroxide Solution. A Capillary-Tube Viscometer 19
Flow Measurement and Control 10
Flow Measurement and Control (concluded) 11
Frenzel-Hahn Yarn Tester 13
Mercerization: The Testing of Cotton for the Degree of 17
Microscope Illuminator 18
New Textile Magnifier 11
Photo-Electric Developments in 1931. 18
Solubility Number: The Determination of. A Micro Method for Measuring the Extent to which a Cellulosic Material has been Chemically Modified or Degraded 19
Textile Microscopes 10
Textile Microscopy Slide 6
Vibroscope for Textile Finishing Plants 11
Whiteness: The Measurement of 14

Miscellany
Corrosion-Resistant Material Made with Metallic Adhesive 16
Dutch Fibre Research Institute: Equipment 14

Book Review
Profitable Practice in Industrial Research 17

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Abbreviations of Titles of Publications Abstracted in This Issue.

For identification of abbreviations not found herein, refer to March issue

Am. Dye. Rptr.	American Dyestuff Reporter
Bur. Stds. J. Rsch.	Bureau of Standards Journal of Research
Chem. & Met.	Chemical & Metallurgical Engineering
Giorn. chim. ind. appl.	Giornale di chimica industriale 'ed applicata'
J. Ind. Chem.	Journal of Indian Chemistry
Leipzig. Monats. Tex. Ind.	Leipziger Monatschrift fur Textile Industrie
Mell. Textilber.	Melliand's Textilberichte
Mell. Tex. Mo.	Melliand Textile Monthly
Natur.	Naturwissenschaften
Papier-Fab.	Papierfabrikant
Z. Angew. Chem.	Zeitschrift fur Angewandte Chemie und Zentralblatt fur technische Chemie
Z. Phys. Chem.	Zeitschrift fur Physikalische Chemie

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ABSTRACTS

EFFECT OF LACTONIC RING ON THE COLOR OF AZO DYES.- D. Chakravarti.
J. Ind. Chem. Soc., 1931, 8, 503-9.

In a study of the auxochromic or the hypsochromic effect of a lactonic ring, a series of azo dyes with lactonic rings has been prepared. The affinities of the azocoumaric acid derivatives for fibres are much greater than those of the azocoumarin derivatires. This shown that the auxochromic effect of the free hydroxyl groups in the acid derivatives appreciably diminishes in the coumarin derivatives; although the dyeing properties of the lactones are much less, the depth of color of the lactones and corresponding ocoumaric acid are much the same. The following dyes have been prepared and are described.

Coumarinazo-o- coumaric acid
Azo-o-coumaric acid
Coumarinazo 4, 7, -dimethyl coumarin
" 4, 6 "
" 4 methyl -α- naphthocoumarin
" 7 hydroxy -4- methyl coumarin
" 7, 8 dehydroxy, -4- methyl coumarin
" dimethylaniline
" Resorcinol
P - nitrobenzene azo - 7,8 - dehydroxy - 4 - methyl-coumarin. (W)

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TEXTILE MICROSCOPY SLIDE.- R. Lasse.
Textilber., 1931, 12, 249-253.

A special slide for textile microscopy comprises a glass slide of ordinary dimensions on to which is fused a rectangular frame of opaque frosted glass. Its dimensions are such that an area some 2.2xl.2 cm. of fabric can be conveniently examined. The trough os formed is filled with Canada balsam; a small plate of glass some 0.8 mm. thick, and of such a size that it fits into the trough with some 0.5 mm. play on each side, is used to 'weight' the test piece; and the whole is covered with a cover slip. The original model was made with a rectangular frame of Kronig cover-slip cement, but this device cannot be used when it is desired to apply heat or carry out any chemical reaction. Twelve photomicrographs are reproduced showing results obtained with this type of slide. (Complete abstract from Instr. Wld., Jan., 1932.)(S)

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EFFECT OF UNSATURATED CHROMOPHORES ON PYRONINE DYESTUFFS I.- B. B. Dikshit and J. O. Tewari.
J. Soc. Chem. Ind. (Japan), 1931, 2511-4.

Dyes were prepared by condensing OH and NH_3 compounds with aconitic acid, and these dyes were compared with analogous dyes from tricarballylic and the saturated acid corresponding to aconitic acid. The absorption minima, appearance, approximate melting point, color in alcohol, effect of addition of acid or alkali, fluorescence, and chemical analyses are given for the aconitein and tricarballylein compounds of phenol, resorcinol, phloroglucinol, m-diethylamino phenol, m-dimethylaminophenol, catechol, m-phenylenediamine, pyrogallol, o-cresol, m-cresol, tetrabromoresorcinol, and tetraiodoresorcinol. (Copied complete from Chem. Abs., 1932, 26, 850.) (W)

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THE MECHANISM OF DYEING OF CELLULOSE. I. THE DYEING OF CELLULOSE WITH BASIC DYES (PRELIMINARY PAPER). SOME KNOWN FACTS WHICH ARE CONSISTENT WITH THE ELECTRICAL ADSORPTION THEORY OF DYEING.- K. Kanamaru.
J. Cell. Inst. (Tokyo), 1931, 1, 175-8 (Abstracts in English 42).

Based on Kanamaru's determination of potentials on cellulosic substances, a theoretical explanation is given for some observed facts in dyeing the cellulosic substances (normal cellulose, hydro and oxy-cellulose, cellulose hydrate, regenerated cellulose, cellulose esters, etc.) with basic dyes. The effects of electrolytes contained in the dye bath and of the pH values of the bath are also considered from the standpoint of the electrical adsorption theory of dyeing. (Copied complete from Chem. Abs., 1932, 26, 601.) (W)

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CATALYTIC FIBRE ALTERATION.- Hugo Kauffman.
Z. Angew. Chem., 1931, 44, 858-60.

Cotton impregnated with some chemicals (such as Uranium derivatives) becomes extremely sensitive to light, and its fibres are shredded in a short time. Ferrous hydroxide has the same detrimental effect. If the fibres contain an iron compound and are subsequently submitted to the action of a caustic solution, they will be badly damaged by light. This is due to the formation of ferrous hydroxide. Ferric hydroxide has no detrimental action. (Copied complete from Chem. Abs., 1932, 26, 850.) (W)

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THE PRODUCTS OF HYDROLYSIS OF TUSSAH SILK FIBROIN.- E. Abderhalden and K.Heyus.
Z. Phys. Chem., 1931, 202, 37-48.

Tussah, or wild, silk differs from that of Bombyx Mori in its greater resistance to acids and alkalies and its failure to disperse in saturated lithium bromide solution. Hydrolysis was performed in three successive stages with 25, 40 and 70% H_2SO_4, respectively. The first hydrolyzate contained the greater part of the usual amino acids; the second contained the same except that tryptophan and aspartic acid were missing; the third contained only glycine and alanine, the latter in great preponderance. The final residue contained the tetrapeptide, di-lalanyl-l-alanylglycine. Apparently Tussah silk consists of several components, probably polypeptides, joined together in some manner, and the behavior in acid hydrolysis is in agreement with previous observation on synthetic polypeptides. New products obtained in small quantity in the hydrolysis of this fibroin were: norvaline, chitosamine, and l-alanyl-l-tyrosine. (W)

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THE VALUE OF SILICATE OF SODA AS A DETERGENT. II.- John D. Carter.
J. Ind. & Eng. Chem., 1931, 23, 1389-95; cf. Stericker Chem. Abs., 17, 1557.

This paper deals with the efficiency of soap builders in preventing the deposition of various pigments on cloth. Evidence is given to show that solid dirt may be removed from one piece of cloth and deposited on another by the same detergent solution. In preventing deposition of pigment Na_2O (SiO_2) 3.25 is superior to Na_3PO_4 but inferior to sodium oleate, while NaOH, Na_2CO_3, and modified soda have little effect. Colloidal substances (starch, glue, gum arabic, clay) give little protection. Silicates of all Na_2O: SiO_2 ratios decrease the deposition of pigment on cloth, the magnitude of the effect depending more upon the SiO_2 than upon the Na_2O content. The protective action of silicates is ascribed to the production of a thin film of silicate on the cloth; the film is removed by rinsing with H_2O. (W)

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DETERGENCY OF ALKALINE SALT SOLUTIONS. I. INITIAL AND AVAILABLE ALKALINITY.- Foster D. Snell.
J. Ind. & Eng. Chem., 1932, 24, 76-80.

The primary field of detergency of alkaline salt solutions is as builders with soap. Although in very dilute solutions soap is mainly crystalloidal, in more concentrated solutions, such as 0.1%, which are more effective cleaners, a reasonable amount of soap is present as colloidal micelles, and the effect of a soap builder would be to cause formation of more colloidal micelles, which probably explains the increased detergency when such builders are added. Another function of the builder is to neutralize acidic ingredients commonly present in dirt, anything lower than pH 10.2 (the pH of neutral commercial soap in 0.1% solution) being added to the soap solution. Some soap builders, notably silicates, have negative radicals which under suitable conditions are also colloidal. Dirt difficult to remove is considered as behaving like oil droplets. Methods previously used for evaluation of detergency are reviewed. The compounds studied have decreasing total alkalinities, as shown by pH or cOH values on 0.033% solutions, in the following order: NaOH, Na_4SiO_4, Na_2SiO_3, Na_3PO_4, sodium silicate 1:1.58 (anhydrous), Na_2CO_3, sodium silicate 1:3.86 (anhydrous), modified soda, borax. Above pH 10.0 they have decreasing available alkalinities in almost the same order. For rational comparison of soap builders it is essential to translate pH into cOH. The conclusion reached is that because of the necessity of neutralizing acidic dirt, a buffered builder is essential, which rules out NaOH. The most effective builders so far as alkalinity is concerned, were found to be Na_4SiO_4 and Na_2SiO_3 in that order of preference. (S)

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DETERGENT VALUE OF SODIUM METASILICATE.- Chester L. Baker.
Mell. Tex. Mo., 1932, III-2, 939-944.

Wetting, emulsification, deflocculation, and dissolving power are important considerations which affect the action of aqueous detergent solutions. Sodium metasilicate is more effective than NaOH, Na_2CO_3, or Na_3PO_4 in wetting glass. Sodium metasilicate is effective in displacing a petroleum oil from a glass surface over a wider range of concentration than the other alkalies here considered. Solutions of $Na_2SiO_3.5H_2O$ and $Na_3PO_4.12H_2O$ emulsify a light motor oil better than do those of Na_2CO_3 and NaOH. Qualitative tests show that solutions of $Na_2SiO_3.5H_2O$ have deflocculating power for bone black of at least the same order of magnitude as $Na_2O:3.25SiO_2$, $Na_3PO_4.12H_2O$, Na_2CO_3, and NaOH.

Sodium silicate yields solutions of higher pH than the other alkalies considered with the exception of NaOH. Sodium hydroxide is too caustic for many cleaning jobs. A larger proportion of the Na_2O in Na_2SiO_3 is available at an effective pH than in the other alkaline salts considered. Soap suds are associated with cleaning activity in soap solutions. A solution of 0.0088 per cent $NaC_{18}H_{35}O_2$ gives a more abundant suds at an optimum pH. Curves are given for the amount of foam formed at 60° C. over a range of pH and concentration for four alkalies. A solution of Na_2SiO_3 with $NaC_{18}H_{35}O_2$ gives more suds at all concentrations than $NaPO_4$, and Na_2CO_3. Less soap is required to wash clothes when the suds are maintained at a relatively high pH, and dirt is removed at least as quickly. (S)

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DETERGENT VALUE OF SODIUM SILICATE.- C. Baker.
J. Ind. & Eng. Chem., 1931, 23, 1479, cf. Chem. Abs., 25, 5957.

Good agreement is evident in certain points: (1) There is an optimum pH for each set of conditions for use of a builder with soap; (2) a builder which does not increase the pH of the solution is of little or no value; (3) the detergent power of the solution is dependent upon both the pH and the anion present; (4) it is important that the builder used have a buffering action at the desired pH. (W)

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CELLULOSE ACETATE: SAPONIFICATION AND SOLUBILITY.- A. Deripasko.
Cell'chem., 1931, 12, 254-263.

Two cellulose acetate preparations were used for the tests. Acetate I was obtained by acetylation of cotton paper for 7 hours at 25° C. in the presence of 15% sulphuric acid as catalyst and contained 55% acetic acid and 4% sulphuric acid; acetate II was prepared by acetylation for 5 hours at 30° C. with 7½% sulphuric acid as catalyst and contained 61-61.5% acetic acid and 1-1.2% sulphuric acid. A mixture of water and acetic acid was used for converting the primary acetate into the secondary acetone-soluble acetate by the so-called saponification process. During this process it was found in the case of acetate I that the sulphuric acid content of the acetate decreased, whilst the acetic acid content at first increased, reaching a maximum after a few hours. The maximum appeared to be higher the greater the excess of acetic anhydride pressure in the reaction mixture and at times reached 60% or over. The increase was not accounted for by simple replacement of sulpho groups. The stability of the product was found to depend partially on its sulphuric acid content. The viscosity of the acetone solution increased with the addition of greater amounts of water to the saponification mixture. The change of the viscosity with the duration of the process was linear; with 95% acetic acid the curve rose to a maximum and then fell again. With acetate II, the saponification process reduced the acetic acid content of the acetate to 57.6-56.4%. The effect of the concentration of the mixture of the viscosity of acetone solutions was similar to that observed with acetate I. Only acetates with acetic acid contents between 60% and 49% were soluble in acetone. A series of acetates with acetic acid contents varying from 60% to 57.5% and sulphuric acid contents from 0.1% to 0.3% was prepared. Only acetates containing 57.4-57-8% were soluble in ethyl acetate. Acetates containing 57% acetic acid were often found to be soluble in both acetone and chloroform. Acetone solutions were titrated with non-solvents and the amount for the production of turbidity was determined. This amount decreased with decreasing acetic acid content of the cellulose acetate for all the non-solvents tested except water, in which case an increase was observed. The differences in solubility observed between cellulose acetates of the same acetic acid content appeared to be due to differences in the sulphuric acid contents. (Complete from J. T. I. Abstract Section, Jan., 1932.) (S)

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X-RAY EXAMINATION OF CELLULOSE DERIVATIVES. XI. ADDITIVE COMPOUNDS OF CELLULOSE WITH HYDRAZINE, ETHYLENEDIAMINE AND TETRAMETHYLENE DIAMINE.- C. Trogus and K. Hess.
Z. Phys. Chem., Abt. B, 1931, 14, 387-95; cf. Chem. Abs., 25, 5983.

The existence of additive compounds of cellulose with the above bases has been demonstrated by x-ray examination. The base is directed across the fibre axis of the cellulose crystallite. These compounds are decomposed on treatment with H_2O. (Copied complete from Chem. Abs., 1932, 26, 591.) (W)

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HYGROSCOPIC MOISTURE OF CELLULOSE. II.- Sutezo Oguri and S. Terui.
J. Soc. Chem. Ind. (Japan) 34 Suppl. binding, 1931, 229-33.

A comparison of the isohygrometric curves for viscose and mercerized cotton and standard celluloses placed the moisture contents (50% rel. humidity) at 9, 8, 5.8 and 5.5%, respectively. It was assumed that these curves could be represented by Langmuir's equation $y = x/(a + bx - cx^2)$ where y = % moisture of the sample at equilibrium, and x = the relative humidity. The constants were: standard cellulose, a = 2.4137, b = 0.2355, c = 0.0020; cotton cellulose, 1.3332, 0.2560, 0.00215, resp; mercerized cellulose, 1.9802, 0.1433, 0.001205, resp. A determination of the rates of moisture adsorption and desorption by the standard cellulose at 20 degrees yielded typical sorption curves, 88% of the total change occurring in 20 minutes. (Complete from Chem. Abs., 1932, 26, 590.) (W)

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BEHAVIOR OF ZINC CHLORIDE IN THE ESTERIFICATION OF CELLULOSE.- W. Frey and E. Elod.
Mell. Textilber., 1931, 64B, 2556-61.

Elod and his co-workers (see original for references) have previously found that in the esterification of cellulose with formic acid the reaction velocity is considerably greater in presence of both zinc chloride and hydrochloric acid than is to be expected purely additively from the individual reaction velocities with only one catalyst ($ZnCl_2$ or HCl). This was ascribed to the formation of 'ansolvo acids' $(ZnCl_2Cl)$ H, $(ZnCl_2HCO_2)$ H, which seems to be confirmed by the present work, in which the solubility of HCl in formic acid containing $ZnCl_2$ has been determined, and found to be considerably higher than in pure $HCOOH_3$. Similarly the conductivity and transport members have been determined in such solutions and indicate the presence of complexes, which other experiments showed have a strongly acid character. It was found that there was a close parallelism between the acid strength and the velocity of solution of cellulose. Experimental confirmation was obtained of Heuser's view that the action of catalysts of cellulose esterification probably depends chiefly on the specific solvent power for cellulose. (W)

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THE INFLUENCE OF QUALITY OF WATER AND HYDROCHLORIC ACID ON THE ASH CONTENT OF VISCOSE CELLULOSE.- I. Zeniskov.
Bumazhnaya Prom., 1931, 10 No. 4, 53-6.

The inorganic impurities in water and in hydrochloric acid (Ca in the former, sulfur and iron in the latter) used in the production of pulp increase the ash content of the latter and make it unsuited for viscose manufacture. (Copied complete from Chem. Abs., 1932, 26, 592.) (W)

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TEXTILE MICROSCOPES.- Walther.
J. T. I., Dec., 1931 (from Spinn. u. Web. 1931, 49, 25, 3-5.)

Illustrations are given of some special devices. The 'Promi' microscope can be used in the usual way or as a projection instrument ('Seibert-Propol'). Another instrument combines two microscopes in one. The two stages and tubes are side by side, but the fields are brought together in one ocular. The instrument is recommended for the comparison of rayon cross sections. (Complete abstract from Instr. Wld., Jan. 1932.) (S)

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FLOW MEASUREMENT AND CONTROL.- M. F. Behar.
Instruments, 1932, 5-3, 75-78.

A continuation of this series including a discussion of head meters, the effect of density and the limitations involved in the use of the formulae. (S)

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NEW TEXTILE MAGNIFIER.
Messrs. Carl Zeiss, Mortimer House, Mortimer St., W. I, London, Eng.

The new textile magnifier with illuminating device meets a long felt want, especially in the textile industry. The obvious fault of the simple hand magnifier was the difficulty of obtaining sufficiently strong artificial illumination without the use of an auxiliary source of light and a condenser.

The new magnifier comprises a metal sphere in the top of which is mounted a x6 aplanatic magnifier giving a perfectly flat field, free from colour. The magnifier can be focused by means of a helical screw mount.

The inside of the sphere has reflecting surface which serves to concentrate the light from an opal bulb lamp onto the surface under examination. This illumination is intense, homogeneous, and practically shadowless, so that the magnifier is available for examining very coarse materials as well as those of exceedingly fine texture. If a filament lamp with clear bulb is used in place of the opal bulb, light can be thrown onto the material in different directions by simply rotating the lamp fitting in its housing. In this way greater detail can be detected in fine structures than with the ordinary shadowless illumination.

The whole equipment has been specially designed for rapid industrial testing. It is strong in construction, simple in design, and is easily portable. It represents a distinct advance in the design of a textile magnifier.

Although called a textile magnifier, the equipment finds useful application in all cases where a magnifier has to be used. (Copied complete from Instr. Wld., 1932, IV-1, 45.) (S)

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VIBROSCOPE FOR TEXTILE FINISHING PLANTS.
Electrocon Corporation.

On a tentering frame which is treating light open weave material, it is essential to keep the weft threads perfectly parallel with the warp threads, but it is very difficult and straining to the operator's eyes to follow the weave of the material as it runs through the machine at 30 yards per minute.

A reflector which contains 3 neon tubes and is faced with a sheet of opaque glass to diffuse the light, is placed behind the cloth, and the speed of flashing of the neon tubes is synchronized with the speed of the cloth. This makes the cloth appear perfectly stationary, and it is a very simple matter for the operator to make the necessary adjustments to maintain the correct relation between the weft and warp threads. The instrument operates directly from the light circuit, no batteries being necessary. (Copied complete from Instruments, 1932, 5, 2.) (S)

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FLOW MEASUREMENT AND CONTROL.- M. F. Behar.
Instruments, 1932, 5, 1, 15-18.

The article includes the classification of instruments relating to flow and then proceeds with a discussion of fluid meters of the positive and inferential type. The article closes with a table showing the available methods and limitation for measuring fluid flow of liquids in open channels and in pipes; of air and gases in the free state and in pipes; and of steam in pipes. (S)

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IS THE PERFECT BRANDING FLUID A POSSIBILITY?- C. E. Timson.
Nat'l. Wool Grower, 1931, XXI-11, 29-30.

Many years of experimentation with different branding fluid formulas, by the Wm. Cooper and Nephews Company laboratory have shown Kemp's Branding Fluid to be the most ideal fluid as regards scourability, but it is only durable for six months, and it is said that it is better for sheepmen to brand twice a year and use a fluid which will scour out. (B)

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THE INFLUENCE OF NUTRITION UPON VARIOUS FACTORS RELATED TO WOOL PRODUCTION.- J. F. Wilson.
Nat'l. Wool Grower, 1931, XXI-12, 23-28.

Three Romney wethers were fed a fattening ration for six months followed by a maintenance ration for six months, and, finally, were kept on a sub-maintenance ration for the last six months.

A comparison of the fleeces grown on the fattening ration with the fleeces grown by the same sheep at a later period while on a sub-maintenance ration gave the following results: The fattening ration gave fleeces which were:

1. About 343% heavier in grease weight.
2. About 319% heavier in scoured weight.
3. Loftier and fuller in texture.
4. Superior in crimp.
5. About 172% longer in length and staple.
6. About 206% stronger, as indicated by mean breaking strength of the basal portions of the fibres.
7. Coarser, as indicated by the micrometer mean fineness, especially at the base of the fibre which most accurately represents the physiological action of the ration.

These results show the importance of maintaining a sheep so that it is not losing weight, for the effect on the wool with a sub-maintenance ration seriously affects the commercial value of the fleece. (B)

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A TEST OF SHEEP BRANDING FLUIDS.- J.F. Wilson
Nat'l. Wool Grower, 1931, XXI-9, 25-27, six illustrations.

Twelve different commercial branding fluids were tested for durability and scourability after being on the sheep for twelve months. Those brands which were durable and most suitable to the wool grower were insoluble in the scouring solution and thus were not suitable to the manufacturer. Similarly, the least durable branding fluids whose brands were not legible on the sheep after twelve months exposure to the weather were completely soluble in the scouring solution. All of the tests with sheep branding fluids have shown a reverse relationship between scourability and durability. (B)

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WOOL SHRINKAGE DETERMINATION BY MEANS OF SMALL SAMPLES.- R. H. Burns.
Record of Proceedings, Annual Meeting, American Society of Animal Production, Jan., 1931, P. 196-203.

Small samples weighing from eight to ten pounds, made up by taking representative handfuls from fifty fleeces, make satisfactory samples for shrinkage tests insofar as can be determined by the correspondence of shrinkages from duplicate samples, and the expectancy (based on 167 bands of sheep sampled in 1927-1929) is that the duplicate samples will vary less than 2% in shrinkage. The larger differences in shrinkage between duplicate samples were associated with larger differences in commercial grades, but there was no relationship between shrinkage differences between duplicate samples and the corresponding difference in dirt content. (B)

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THE IDENTIFICATION OF FIBRES.- H. B. Gordon.
The Mell. Tex. Mo., 1932, III-2, 908-910.

The conclusion of a series of articles in which are discussed the differences between mohair, camel hair, alpaca, llama, vicuna, cashmere, goat, rabbit, cow hair, horse hair, and human hair. Very brief descriptions omitting quantitative data are given and while some of the photomicrographs are excellent, on the whole they are not particularly representative. (S)

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FRENZEL-HAHN YARN TESTER.- W. Frenzel.
Leipzig. Monats. Text. Ind., 1931, 46, 325-326, 354-355.

The Frenzel-Hahn apparatus permits the elastic and permanent extension of yarns at any desired load, and the strength of the yarns to be determined. It consists essentially of two pairs of rollers for the supply and delivery of yarns respectively, a reel, driven from the delivery rollers, on to which the yarn is wound after passing the rollers, and, between the two pairs of rollers, a tension pulley on a lever carrying a weight by means of which the tension on the yarn is adjusted. Both pairs of rollers and the reel are provided with length-indicating mechanism. The tension in the yarn before the feed rollers and before the reel must be the same and can be adjusted with a sensitive tension regulator. As the yarn stretches under tension the delivery must be quickened and a pointer connected with the weight lever indicates how much quicker the delivery rollers are to be rotated. If,however. the feed roller indicator shows the length of yarn fed to the apparatus to be 100 m. (a), the delivery rollers indicator shows 105.275 m., (b) and the reel indicator shows 101.525 m., (c), the total extension is given by (b - a) = 5.275 per cent, the permanent extension by (c - a) = 1.525 per cent, and the elastic extension by 5.275 - 1.525 = 3.750 per cent. If it is desired to determine whether a yarn has a certain minimum strength, below which demands on it in subsequent processing can be kept, the number of breaks per 100 metres, for example, of yarn under a load equal to the prescribed minimum strength is determined, and the distance of each break from the beginning of the length of yarn under test can be read from the feed rollers indicator. In an example of the use of the apparatus, 10 metre lengths of yarn are tested under loads of 25, 50, 75, 100 and 125 grams, up to breaking point. The diagram obtained by plotting the total extension and permanent extension gives a picute of the extension properties of the yarn in the region of its application, and at the same time the lower limit of strength is obtained. If the mean strength and extension at break are also desired, the breaking load apparatus is employed and it is found that the total extension curve obtained with the Frenzel-Hahn apparatus tends toward the point of mean strength and extension. Typical diagrams for cotton, rayon and wool yarns are reproduced. In practice it is generally sufficient to determine the elastic extension under a selected tension, the lower limit of strength and the number of breaks at this or another load. If the apparatus is equipped with a motor drive it may be used to record graphically the regularity of yarn extension. (Copied complete from J. T. I. Abstract Section, Vol. 23-3) (S)

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THE ACID VALUE OF CELLULOSE FATTY ACID ESTERS AND A RAPID METHOD FOR THE ANALYSIS OF CERTAIN CELLULOSE ACETATES.- T. F. Murray, Jr., C. J. Staud and H. LeB. Gray.
Communication No. 461. J. Ind. and Eng. Chem. Analyt. Ed., 3: 269-73.

Several of the important methods for determining the acetyl value of cellulose acetate are indicated. Alkaline saponification following swelling in alcohol, a slight modification of the Eberstadt method, is preferred for routine analysis. A distillation method using tartaric acid to liberate the acetic acid after alkaline saponification is suggested for use with sugar esters and the esters of degraded cellulose. A rapid method for determining acetyl values in cellulose acetate consists of solution of the ester in pyridin, followed by alkaline saponification at 53° C. The pyridine method gives satisfactory results on cellulose acetates having acetyl values between 35.8 and 44.7 per cent. (Copied complete from Eastman Kodak Bulletin, Feb., 1932.) (S)

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TRAVELER WEIGHTS AND YARN TENSIONS DURING SPINNING.- C. D. Brandt.
The Mell. Tex. Mo., III-2, 914-16.

This is Part III and the conclusion of a series of articles dealing with this subject. Numerous charts are given. The two previous installments covered a collection of data and the work of computation. The conclusions are drawn in this final article. It was said that the traveler weight affected such yarn characteristics as elasticity, strength, and uniformity. Further, the increased traveler weights increased the amount of yarn which could be wound on the bobbin. (S)

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MICROSCOPY OF THE COTTON CELLULOSE FIBRE.- R. N. Titus, C. J. Staud and H. LeB. Gray.
Communication No. 468. J. Chem. Ed., 9: 114, Jan., 1932.

The general growth process by which the cotton seed hair is formed is briefly reviewed, followed by a discussion of the composition of the primary cell wall and the microscopy of the growth of the secondary cell wall, with an outline of the mechanism by which these processes may take place. A short section is devoted to the subject of the so-called "dead hairs" and a brief statement of the possible theoretical mechanism of their formation is given. The desiccation of the cotton fibre and the cuticular layer are also discussed. The present conception of the cause and formation of the spiral form of the desiccated fibres is reviewed. Work done on the study of the porosity of the cotton fibre is also presented together with some of the literature dealing with the correlation between the areas of strain in the living fibre with the twists of the desiccated fibre. Finally, the theoretical considerations attempting to explain why a desiccated fibre cannot be restored to its original form are given. (Copied complete from Eastman Kodak Bulletin, Feb.,1932.) (S)

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SILK: PHOTOCHEMICAL DECOMPOSITION.- M. Harris and D. A Jessup.
Bur. Stds. J. Rsch., 1931, 7, 1179-84.

The extent to which silk is weakened by light depends on the reaction of its extract, other factors remaining constant. The maximum stability is found at about pH 10. Above pH 11 and below pH_3 the stability decreases rapidly. In the neutral region, pH 6 to pH 8, silk is less resistant to light than when it is more acid or alkaline. Silk treated with N/10 sodium hydroxide solution is more stable to the action of light than either the untreated silk or silk treated with N/10 sulphuric acid solution. The acid-treated silk is least stable. Commercial finishing should, therefore, leave silk at a pH of about 10 if the maximum stability to light is desired. (Copied complete from J. T. I., Mar., 1932.) (S)

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DUTCH FIBRE RESEARCH INSTITUTE: EQUIPMENT.
Pamphlet: "Eenige Mededeelinger Betreffende den Rijksvezeldienst," 1931, 29 pp.

An illustrated account is given of the machines comprising the equipment of the Dutch Fibre Research Institute. Machines for the examination of fibres include the Ball's sorter, Krais dynamometer, Schopper conditioning apparatus and Leitz microprojection apparatus; for the examination of yarns, the Goodbrand lea-tester, Schopper dynamometers, Tarnagrocki dynamometer for testing strong yarns of long fibres such as manila and sisal, de Vooys' ballistic tester and Schopper twist tester; and for the examination of fabrics, Schopper dynamometers, the Buskop tester, a folding test apparatus due to de Vooys, apparatus for determining the permeability of fabrics to air, a "hammer apparatus" for testing filter cloths and a Hanau quartz-mercury lamp. (Copied complete from J. T. I. Abstract Section, Mar., 1932.) (S)

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BAST FIBRES: FIBRILLAR STRUCTURE.- A. Herzog.
Papier-Fab., 1931, 29, Ver. Zellst. Ing., 833-837.

A fibrillar structure can be detected in the inner thickening layer of incompletely developed bast fibres, but on further development this layer appears to be homogeneous under the microscope. The existence of a fibrillar structure in the older fibres can, however, be demonstrated by examination after mechanical treatment or treatment with swelling agents. Typical photomicrographs are given. The influence of mechanical and chemical treatment in the paper and textile industries on this structure is described. A table is given showing the weights and surfaces of flax fibres and yarns and of linen fabric and paper. (Copied complete from J. T. I. Abstract Section, March, 1932.) (S)

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CELLULOSE ACETATE RAYON: PREPARATION FROM NON-LIGNIFIED CELLULOSE.- Bosse, Seidel and Sedlacek.
Russa, 1931, 6, 1807-1811.

A process for the manufacture of cellulose acetate rayon from peat, young reeds, bamboo and green maize straw is described in detail. The raw material is treated with alkalis at 60-65° and then bleached, first with sodium sulphite and then with a mixture of bleaching powder, sodium carbonate and sodium sulphate, before acetylation. A wet-spinning process is employed. A machine for the continuous spinning and after-treatment of the rayon is described. (Copied complete from J. T. I. Abstract Section, Mar., 1932.) (S)

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THE EFFECT ON WOOL OF TEMPERATURE AND HYDROGEN ION CONCENTRATION OF THE SCOURING BATH.- G. Milton Barmore.
Rensselaer Polytechnic Institute Bulletin, Engineering and Science Series, No. 35, Feb.,1932, P.20.

The immersion of wool in distilled water of various temperatures, and for various time periods does not effect the tensile strength of the wool after the wool is redried.

For baths of the same temperature, the tensile strength of wool is decreased by immersion in baths of pH values greater than 4.8, although is practically zero until pH value becomes greater than 7.0. The loss in tensile strength from this pH value upward slowly increases, the rate of loss becoming greater until the last 50 to 75% of the tensile strength disappears within an increase of 1 in pH value.

As the temperatures of the baths having the same pH values was increased, it was found that the average rate of decrease in the tensile strength doubled for every 13 to 14° C. rise in temperature.

On investigating the effect of time, it was found that for short time periods, the rate of decrease in the tensile strength was very rapid, and slowing up as the time period increased.

It was found that decoloration is also a function of pH value of the bath solution. The decoloration is very small and not noticeable to the eye for most pH values between 7 and 9.5. Above the latter pH for long time periods, the amount of decoloration increases more rapidly until it becomes maximum.

The temperature of 50° C. appeared to give the maximum pH range for clean wool when the time period was approximately 4 to 5 minutes. (S)

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CELLULOSE NITROACETATE RAYON: PREPARATION AND PROPERTIES.- F. Ohl.
Kunstseide, 1931, 13, 420-424.

Methods of preparing cellulose nitro-acetate rayon and the properties of the fibre are reviewed. It is pointed out that on account of the inflammability and other defects the products have as yet no practical importance. (Copied complete from J. T. I. A bstract Section, Mar., 1932.) (S)

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FASTER DYEINGS ON RAYON AND COTTON MIXED GOODS: THE PRODUCTION OF.- P. Stott. Ame. Dye. Rptr., Apr. 11, 1932, P. 249-57.

Paper presented and discussed at meeting, Mar. 18, 1932, of New York Section of American Association of Textile Chemists and Colorists.

Considers the color fastness requirements of the principal cotton-rayon fabrics and the selection of dyes and dyeing methods in the terms of the uses to which they will be subjected, and particularly to the need of colors fast to light, washing and perspiration. Discussion of the paper also reported.(C)

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DASHEEN STARCH.- Margaret S. Furry.
Textile World, Apr. 2, 1932, P. 34-35.

Report of investigation by the U. S. Bureau of Home Economics on value of dasheen starch in commercial sizing and finishing, accompanied by photomicrographs and bibliography of literature of starches and sizing. Dasheens have been grown commercially in the South since 1913. The starch is extracted easily from the tuberous root growths of this variety of taro. The dasheen starch granules both raw and swollen are claimed to be the smallest known. Penetration of various starches was found to follow the same order as the size of the swollen granules. The comparative viscosity, or consistency, of dasheen and corn starch pastes was evaluated from the time of flow of equal quantities of pastes of the same concentration measured at the same temperature: "The flow time for 25 c.c. of dasheen starch paste was approximately 50 seconds, while for corn starch the time was slightly less than 68 seconds." Cloth finished with dasheen starch is said to somewhat resemble that finished with rice starch. (C)

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THE EFFECT OF pH ON THE PHOTOCHEMICAL DECOMPOSITION OF SILK.- Milton Harris and Daniel A. Jessup.
Textile Colorist, 1932, 54, 640, 239-40, 272.

Follows bibliography and discussion of published opinions as to the nature and mechanism of the breakdown of silk under exposure to light by description of a series of experiments designed to show the physical and chemical effects of light. The results and practical significance of these experiments are described as follows:"These experiments show that silk decreases in strength on exposure to light and that the rate of deterioration depends upon the pH to which the silk has been finished. Contrary to what might be expected from the fact that alkalies hydrolyze proteins more rapidly than do acids, silk treated with 0.1 *N* NaOH is more stable in light than silk treated with 0.1 *N* H_2SO_4. Silk whose water extract has a pH of about 10 shows maximum stability to light.

"The stability decreases rapidly above pH 11 and below pH 3. From pH 6 to pH 8; that is, in the region of neutrality, silk is less resistant to light than when it is more acid or alkaline.

"These observations lead at once to the very practical conclusion that commercial finishing should leave silk at a "pH" of about 10 if the maximum stability to light is desired. Whether other considerations will permit of such finishing must be decided for the materials to be processed."(C)

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CORROSION-RESISTANT MATERIAL MADE WITH METALLIC ADHESIVE.- A. W. Coffman. Chem. & Met., 1932, 39, 3.

Fibrous materials, principally asbestos felt, are affixed by pressure to one or both sides of sheet metal that has been coated with lead, zinc or other metal of low melting point, that acts as an adhesive. The felt of the resultant laminated material may be treated with suitable saturants to produce a waterproof or corrosive-resistant felt. Additional advantages are resistance to heat, increased insulating value, and soundless character. This "Robertson Bonded-Metal" was the result of research at the Mellon Institute, Pittsburgh, Pa. (C)

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THE TESTING OF COTTON FOR THE DEGREE OF MERCERIZATION.- W. F. A. Ermen.
Textile Colorist, 1932, 54, 640, 227-29.

The writer had previously (Jnl. Soc. Dyers & Col., 1931, p. 31) shown that the difference in color of mercerized and unmercerized cotton could be made permanent by taking advantage of the fact that absorbed iodine is capable of oxidizing Indigosol O4B in a boiling solution of the dye (Jnl. Soc. Dyers & Col., 1931, p. 161). He now admits that with the hot solution of Indigosol O4B some iodine is always extracted before deposition can be induced, and also that acid liberated during the reaction causes progressive decomposition of the indigosol solution. He recommends Indigosol OR as a substitute for Indigosol O4B, the former being used cold with successive batches of test material until nearly exhausted. (C)

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THE PRODUCTION OF WHITE COTTON CLOTH.- Raffaele Sansone.
Textile American, 1932, 57, 4, 46-47, 51.

Various methods are described by which, on many kinds of gray cotton cloths, a sufficiently white bleach may be obtained in the boiling-out kier, without after treatment with hypochlorites, or other bleaching agents, thus cheapening the bleaching process and reducing danger of tendering. (C)

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RAMIE REDIVIVUS.
Industrial Bulletin of Arthur D. Little, Inc., 1932, No. 62.

Methods of growing ramie in eastern Asia and preparing it for market are described. Notes that "chief technical difficulties which have interfered with the establishment of a larger ramie industry in the United States are in the degumming of the fibre, and in the subsequent manufacture." The same might have been accurately stated of the status of ramie manufacture in Europe, where several small mills are regularly employed on ramie products, but with no successful commercial substitute for hand methods of decorticating and degumming the fibre. It is correctly stated that the history of ramie is "made up of a long series of failures and financial loss." (C)

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BOOK REVIEW

PROFITABLE PRACTICE IN INDUSTRIAL RESEARCH.- Malcolm Ross, Maurice Holland and William Spraragen.
Harper & Bros., New York, N. Y., Pp. 269, $4.00.

Directors of great research laboratories explain the paths that have led to success in research with the least possible unproductive expenditure. Among these are Frank B. Jewett, Bell Telephone Laboratories; Charles F. Kettering, General Motors Corp.; C. E. Kenneth Meers, Eastman Kodak Co.; Charles M. A. Stine, E. I. du Pont de Nemours & Co.; Willis R. Whitney, General Electric Co.

Practically every problem likely to be faced by those organizing for research individually or cooperatively, and by those actually engaged in industrial research is discussed by one or more of the fourteen contributors. (C)

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COTTON-RAYON MIXTURES: CAREFUL CHOICE OF DYESTUFFS ESSENTIAL FOR FASTER.- Philip Stott.
Textile World, April 16, 1932, P. 34.

Abstract of paper read at meeting of New York Section of American Association of Textile Chemists & Colorists, Mar. 18, 1932. (C)

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RAYON: RECENT TRENDS IN RUNNING.- H. W. Rose.
Cotton, 1932, 96, 4, 30-33, 84.

Practical treatise on the selection and preparation of rayon yarn for rayon-warp goods, with particular reference to improper processing that cause dye streaks. (C)

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PENETRANTS AND WETTING AGENTS. I.- Andrew J. Kelley.
Cotton, 1932, 96, 4, 34-36.

The boiling-out, wetting-out and cleansing efficiency of those solvents and penetrants that are water-soluble, or which solutize easily with sulphonated oils or soaps, and a discussion of their properties. (C)

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WARP MERCERIZING: CHEMICAL CONTROL FOR UNIFORM RESULTS IN.- B. F. Mitchell.
Textile World, Apr. 16, 1932, P. 40.

Abstract of paper read at meeting of Southern Textile Association, Apr. 2, 1932. The control problems of the various processes and the preferred methods of control. (C)

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FORMYL CELLULOSE.- G. Tocco and A. Nysseus.
Giorn. Chim. Ind. Appl., 1931, 13, 325-30.

An outline is given of the method of preparation and the properties of formylcellulose. (Copied complete from Chem. Abs., 1932, 26, 591.) (W)

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PHOTO-ELECTRIC DEVELOPMENTS IN 1931.- H. Olken.
Instruments, 1932, 5, 1, 1-4.

This is a review of progress in photo-electric developments during the past year covering first the advances in the design of photo-electric cells and secondly the application of photo cells to measurement and control. (S)

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MICROSCOPE ILLUMINATOR.
Instruments, 1932, 5, 3, 80.

A reflector arranged so that light from the sub-stage of a microscope is directed by reflection and refraction on to the surface of the specimen without interfering with the use of modern power objectives. (S)

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FUGITIVE STAINS FOR WOOL YARNS.- Daniel H. Jones and Louis S. Potsdamer.
Mell. Tex. Mo., 1932, III, 2, 930-32.

The conclusion of a series of articles dealing with tests on a number of dyes intended for the fugitive dyeing of wool yarns. A list of some 20 dyes is given together with the effects. (S)

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DRY CLEANING AND TEXTILE MAINTENANCE PROBLEMS, AS AFFECTING EVERY BRANCH OF THE TEXTILE AND GARMENT INDUSTRY.- W. M. Kuhn.
Mell. Tex. Mo., 1932, III-10, 833-836.

A review of the subject as covered in the title. (S)

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THE MINIMUM EQUIVALENT OF B-CELLULOSE, TUNICIN, COTTON CELLULOSE.- Erich Schmidt, Wilhelm Simson and R. Schnegg.
Natur., 1931, 19, 1006-7.
(Copied from Chem. Abs., 1932, 26, 1436.) (W)

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THE DETERMINATION OF SOLUBILITY NUMBER: A MICRO METHOD FOR MEASURING THE EXTENT TO WHICH A CELLULOSIC MATERIAL HAS BEEN CHEMICALLY MODIFIED OR DEGRADED.- C. R. Nodder.
J. T. I., 1931, 22, T416-24, T464.
(Copied from Chem. Abs., 1932, 26, 1436.) (W)

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MEASUREMENT OF THE VISCOSITY OF SOLUTIONS OF CELLULOSE IN CUPRAMMONIUM HYDROXIDE SOLUTION. A CAPILLARY-TUBE VISCOMETER.- R. W. Kinkead.
(Copied from Chem. Abs., 1932, 26, 1436.) (W)

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HIGHLY POLYMERIZED COMPOUNDS. LIV. CONSTITUTION OF COMPOUNDS OF HIGH MOLECULAR WEIGHT, ESPECIALLY OF CELLULOSE.- H. Staudinger.
Mell. Textilber., 64B, 1688-97, 1931; c.f. Chem. Abs., 25, 5138.
A reply to Hess and Sakurada, Chem. Abs., 26, 114. (Copied from Chem. Abs., 1932, 26, 1248-9.) (W)

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PROGRESS IN BLEACHING, DYEING AND FINISHING.- A. J. Hall.
Textile Recorder, 1932, 49, 586, 59-61.
A review of developments during 1931. (Copied from Chem. Abs., 1932, 26, 1446.) (W)

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FIBRE PROPERTIES AND MICELLE ORIENTATION.- A. J. Hall.
Textile Colorist, 1931, 53, 520-3.
The relation between the fine structure of cotton and rayon fibres and their technical uses is briefly discussed. (Copied complete from Chem. Abs., 1932, 26, 1446.) (W)

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THE MEASUREMENT OF WHITENESS.- J. Auerbach.
Kunststoffe, 1931, 21, 231-3.
Several simple devices for determining relative whiteness are described. (Copied complete from Chem. Abs., 1932, 26, 885.) (W)

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DECOMPOSITION OF CELLULOSE BY MICROORGANISMS. II. THE CHEMISTRY OF THE BREAKDOWN OF CELLULOSE BY THE AEROBIC SPORE-FORMING BACTERIA.- P. E. Simola.
Ann. Acad. Sci. Fennicae, Ser. A., 1931, 34, 6, 1-115. c.f. Chem. Abs., 1931, 25, 4574.
(Copied from Chem. Abs., 1932, 26, 1316.) (W)

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TIRE CORD. A DECADE OF DEVELOPMENT.- H. P. Gurney and E. H. Davis.
India Rubber Journal, 1931, 83, 599-607.
A number of relationships of physical constants are included. (Copied from Chem. Abs., 1932, 26, 1153.) (W)

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